

**AMENDMENTS TO THE CLAIMS**

**Please cancel claim 14 without prejudice or disclaimer, add claims 19-21, and amend claims 3, 12, and 13 as follows:**

1. (Canceled).
2. (Withdrawn) A sintering apparatus of a porous glass base material for sintering a rod-like porous glass base material by hanging and moving the rod-like porous glass base material through a heating furnace wherein a length of an insulating member is set such that every part of a porous glass base material is lowered into a heating furnace and moved through a preheated region extending from an upper edge of the insulating member to an upper edge of a heater in a heating furnace body in 4.5 hours or longer.
3. (Currently Amended) A method of sintering a rod-shaped porous glass base material in a furnace core tube, said furnace core tube having a heating section that is concentrically surrounded by a heater of a heating furnace and a preheating section that is surrounded by an insulating member of said heating furnace, said insulating member serving with said furnace core tube to enclose said heater, said preheating section extending from an upper edge of said insulating member to an upper edge of said heater in said heating furnace, said method comprising:
  - hanging said rod-shaped porous glass base material in said furnace core tube;
  - heating said preheating section of said furnace core tube by heating said heater to a sintering temperature; and
  - lowering said rod-shaped porous glass base material through said preheating section and said heating section, an entirety of said rod-shaped porous glass base material being lowered through said preheating section in a period of time being greater than or equal to 4.5 hours, said entirety of said rod-shaped porous glass based material being preheated, having a temperature in a radial direction being evenly distributed, and having temperatures in a cross section of the radial direction being minimally different before vitrification of an outer portion of said rod-shaped porous glass based material begins in said heating section ~~and through said heating section~~, said rod-shaped porous glass base material thereby being sintered into a transparent glass.

4. (Previously Presented) The method according to claim 3, wherein the rod-shaped porous glass base material comprises a large-diameter porous glass base material.
5. (Previously Presented) The method according to claim 3, wherein the rod-shaped porous glass base material comprises a large-mass porous glass base material.
6. (Previously Presented) The method according to claim 4, wherein the large-diameter porous glass base material comprises a large-mass porous glass base material.
7. (Previously Presented) The method according to claim 3, wherein a length of the preheating section is in a range from 450 mm to 600 mm.
8. (Previously Presented) The method according to claim 3, wherein said rod-shaped porous glass base material is lowered at a lowering rate in a range of 1.08 mm/min to 1.48 mm/min.
9. (Previously Presented) The method according to claim 8, wherein a rate control apparatus controls the lowering rate of the rod-shaped porous glass base material.
10. (Previously Presented) The method according to claim 7, wherein said rod-shaped porous glass base material is lowered at a lowering rate of 1.68 mm/min.
11. (Previously Presented) The method according to claim 8, wherein a length of the preheating section is 400 mm.
12. (Currently Amended) The method according to claim 3, wherein a core displacement ratio and a deformation ratio are less than or equal to 0.1 %.
13. (Currently Amended) The method according to claim 3, wherein a core displacement ratio and a deformation ratio are less than or equal to 0.05 %.
14. (Canceled).

15. (Previously Presented) The method according to claim 3, wherein the insulating member of the heating furnace surrounds an upper portion of said furnace core tube.
16. (Previously Presented) The method according to claim 3, wherein an outer diameter of the rod-shaped porous glass base material is 250 mm.
17. (Previously Presented) The method according to claim 3, wherein a mass of the rod-shaped porous glass base material is 80 kg.
18. (Previously Presented) The method according to claim 16, wherein a mass of the rod-shaped porous glass base material is 80 kg.
19. (New) The method according to claim 3, wherein said lowering said rod-shaped porous glass base material through said heating section comprises, by fusion, vitrifying said rod-shaped porous glass base material.
20. (New) The method according to claim 19, wherein said vitrifying said rod-shaped porous glass base material is performed evenly such that a core displacement ratio and a deformation ratio are less than or equal to 0.1 %.
21. (New) The method according to claim 19, wherein said vitrifying said rod-shaped porous glass base material is performed evenly such that a core displacement ratio and a deformation ratio are less than or equal to 0.05 %.